

# PATENT ABSTRACTS OF JAPAN

3/5

✓ (11) Publication number → 10-330534  
(43) Date of publication of application : 15.12.1998

(51) Int.CI.

C08K 3/34  
C08L101/00  
// C08J 5/00

(21) Application number : 10-167826

(71) Applicant : TOYOTA CENTRAL RES & DEV LAB INC

(22) Date of filing : 20.03.1998

(72) Inventor : USUKI ARIMITSU  
MIZUTANI TADASHI  
FUJIMOTO SHIGERU  
KURAUCHI NORIO  
UEGAKITO OSAMI

## (54) COMPOSITE MATERIAL

### (57) Abstract

**PROBLEM TO BE SOLVED:** To obtain a composite material which possesses excellent mechanical strength and heat resistance by dispersing and incorporating in a molecular state a clay mineral having a specified layer thickness and a specified layer-to-layer spacing in a resin contg. a thermosetting resin.

**SOLUTION:** The resin in the composite material is a resin contg. a thermosetting resin and comprises either a thermosetting resin or a mixture of a thermosetting resin with other polymeric compd. Besides the blend polymer, graft polymer, copolymer, block copolymer and the like may be used as the mixture. The thermosetting resin is at least one resin selected from among phenolic resin, epoxy resin, unsatd. polyester resin, alkyd resin and the like. The layered clay mineral is a phyllosilicate mineral comprising magnesium silicate layer or an aluminum silicate layer which has a thickness of 7 to 12 &angst; and a layer-to-layer spacing of not less than 30 &angst;. The layered clay mineral is negatively charged due to isomorphous substitution or the like. The layered clay mineral has an occupied layer surface area of 25 to 200 &angst;<sup>2</sup> per univalence of the negative charge, a layer-to-layer spacing of not less than 30 &angst; and is incorporated in an amt. of 0.5 to 150 pts.wt based on 100 pts.wt. resin.

## LEGAL STATUS

[Date of request for examination]

20.03.1998

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

✓ [Patent number] → 3014674

[Date of registration]

17.12.1999

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]